

Form PTO-1449 (Modified)

U.S. Department of Commerce  
Patent and Trademark Office

Atty. Docket No.

05569.0004.DVUS11

Serial No.

New  
Application

Applicant

McCafferty, J. et al.

Filing Date

3-18-04

Group

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

## U.S. PATENT DOCUMENTS

*Examiner Initials		Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
ADS	A1	4,593,002	06/03/86	Dulbecco	435	172.3	
	A2	4,816,397	03/28/89	Boss et al.	435	68	
	A3	4,946,778	08/07/90	Ladner et al.	435	69.6	
	A4	5,091,513	02/25/92	Huston et al.	530	387	
	A5	5,223,409	06/29/93	Ladner et al.	435	69.7	
	A6	5,403,484	04/04/95	Ladner et al.	435	235.1	
	A7	5,427,908	06/27/95	Dower et al.	435	5	
	A8	5,658,727	08/19/97	Barbas et al.	435	6	
	A9	5,688,666	11/18/97	Bass et al.	435	69.4	
	A10	5,750,373	05/12/98	Garrard et al.	435	69.4	
	A11	5,759,817	06/02/98	Barbas, C.	435	69.7	
	A12	5,770,356	06/23/98	Light et al.	435	5	
	A13	5,780,279	07/14/98	Matthews et al.	435	172.3	
	A14	5,821,047	10/13/98	Garrard et al.	435	5	
	A15	5,846,765	12/08/98	Matthew et al.	435	69.1	
	A16	5,849,500	12/15/98	Breitling et al.	435		
✓	A17	5,985,588	11/16/99	Breitling et al.	435	7.8	

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## FOREIGN PATENT DOCUMENTS

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ADS	B1	WO 83/02393	07/21/83	WIPO				
	B2	EP 2 137 631	10/10/84	EP				
	B3	EP 0 168 933	01/22/86	EP				
	B4	WO 88/06630	09/07/88	WIPO				
	B5	WO 88/09344	12/01/88	WIPO				
	B6	EP 0 324 162 A1	12/24/88	EP				
	B7	AU-B-27617/88	07/06/89	AU				
	B8	WO 90/02809	03/22/90	WIPO				
	B9	WO 90/05144	05/17/90	WIPO				
	B10	WO 90/14424	11/29/90	WIPO				
	B11	WO 90/14430	11/29/90	WIPO				
	B12	WO 90/14443	11/29/90	WIPO				
	B13	WO 91/10737	07/25/91	WIPO				
	B14	WO 91/17271	11/14/91	WIPO				
	B15	WO 92/06204	04/16/92	WIPO				
	B16	WO 92/09690	06/11/92	WIPO				
	B17	WO 92/18619	10/29/92	WIPO				

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ADS	C1	Amit, A.G. <i>et al.</i> , "Three-Dimensional Structure of an Antigen-Antibody Complex at 2.8 Å Resolution." <i>Science</i> . 233:747-753 (August, 1986).
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	C4	Beck, E. <i>et al.</i> , "Nucleotide sequence and genome organisation of filamentous bacteriophages f1 and fd," <i>Gene</i> , 16:35-58 (1981).
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	C6	Berek, C. <i>et al.</i> , "Molecular events during maturation of the immune response to oxazolone," <i>Nature</i> , 316:412-418 (August, 1985).
	C7	Better, M. <i>et al.</i> , "Escherichia coli Secretion of an Active Chimeric Antibody Fragment," <i>Science</i> , 240:1041-1043 (May, 1988).
	C8	Bhat, T.N. <i>et al.</i> , "Small rearrangements in structures of Fv and Fab fragments of antibody D1.3 on antigen binding," <i>Nature</i> , 347:483-485 (October, 1990).
	C9	Bird, R.E. <i>et al.</i> , "Single chain antibody variable regions," <i>TIBTECH</i> , 9:132-137 (April, 1991).
	C10	Bird, R.E. <i>et al.</i> , "Single-Chain Antigen-Binding Proteins," <i>Science</i> , 242:423-426 (October, 1988).
	C11	Boeke, J.D. <i>et al.</i> , "Effects of Bacteriophage f1 Gene III Protein on the Host Cell Membrane," <i>Mol. Gen. Genet.</i> , 186:185-192 (1982).
	C12	Boyle, W., "An Extension of the <sup>51</sup> Cr-Release Assay for the Estimation of Mouse Cytotoxins," <i>Transplantation</i> , 6(6):761-764 (1968).
	C13	Branden, C. <i>et al.</i> , in <i>Introduction to Protein Structure</i> , Garland Publishing, Inc., New York and London, pp.26-29 (1991).
	C14	Brenna, O. <i>et al.</i> , "Affinity-Chromatography Purification of Alkaline Phosphatase from Calf Intestine," <i>Biochem. J.</i> , 151:291-296 (1975).
↓	C15	Brownstone, A. <i>et al.</i> , "Biological Studies with an Iodine-Containing Synthetic Immunological Determinant 4-Hydroxy-3-iodo-5-nitrophenylacetic Acid (NIP) and Related Compounds," <i>Immunology</i> , 10:481-492 (1966)

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## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

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	C17	Carter, P. <i>et al.</i> , "Improved oligonucleotide site-directed mutagenesis using M13 vectors" <i>Nucl. Acids Res.</i> , 13(12):4431-4443 (1985).
	C18	Casali, P. <i>et al.</i> , "Human Monoclonals from Antigen-Specific Selection of B Lymphocytes and Transformation by EBV," <i>Science</i> , 234:476-479 (October, 1986).
	C19	Chaidaroglou, A. <i>et al.</i> , "Function of Arginine-166 in the Active Site of <i>Escherichia coli</i> Alkaline Phosphatase," <i>Biochemistry</i> , 27:8338-8343 (1988).
	C20	Chang, C. N. <i>et al.</i> , "Nucleotide sequence of the alkaline phosphatase gene of <i>Escherichia coli</i> ," <i>Gene</i> , 44:121-125 (1986).
	C21	Chaudhary, V.K. <i>et al.</i> , "A rapid method of cloning functional variable-region antibody genes in <i>Escherichia coli</i> as single-chain immunotoxins," <i>Proc. Natl. Acad. Sci., USA</i> , 87:1066-1070 (February, 1990).
	C22	Chiang, Y.L. <i>et al.</i> , "Direct cDNA Cloning of the Rearranged Immunoglobulin Variable Region," <i>BioTechniques</i> , 7(4):360-366 (1989).
	C23	Choo, Y. <i>et al.</i> , "In vivo repression by a site-specific DNA-binding protein designed against an oncogenic sequence," <i>Nature</i> , 372:642-645 (1994).
	C24	Choo, Y. <i>et al.</i> , "Selection of DNA binding sites for zinc fingers using rationally randomized DNA reveals coded interactions," <i>Proc. Natl. Acad. Sci., USA</i> , 91:11168-11172 (1994).
	C25	Choo Y. <i>et al.</i> , "Toward a code for the interactions of zinc fingers with DNA: Selection of randomized fingers displayed on phage," <i>Proc. Natl. Acad. Sci., USA</i> , 91:11163-11167 (1994).
	C26	Chothia, C. <i>et al.</i> , "Canonical Structures for the Hypervariable Regions of Immunoglobulins," <i>J. Mol. Biol.</i> , 196:901-917 (1987).
	C27	Chuchana, P. <i>et al.</i> , "Definition of the human immunoglobulin variable lambda (IGLV) gene subgroups," <i>Eur. J. Immunol.</i> , 20:1317-1325 (1990).
↓	C28	Clackson, T. <i>et al.</i> , "'Sticky feet'-directed mutagenesis and its application to swapping antibody domains," <i>Nucl. Acids Res.</i> , 17(24):10163-10170 (1989).

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
ADS	C29	Cunningham, C. <i>et al.</i> , "Antibody engineering - how to be human," <i>Trends Biotechnology</i> , 10(4):112-113 (April, 1992).
	C30	Curti, B.D., "Physical Barriers to drug delivery in tumors," <i>Critical Reviews in Oncology/Hematology</i> , 14:29-39 (1993).
	C31	Cwirla, S.E. <i>et al.</i> , "Peptides on phage: A vast library of peptides for identifying ligands," <i>Proc. Natl. Acad. Sci., USA</i> , 87:6378-6382 (1990).
	C32	De Bellis, D. <i>et al.</i> , "Regulated expression of foreign genes fused to <i>lac</i> : control by glucose levels in growth medium," <i>Nucl. Acids Res.</i> , 18(5):1311 (1980).
	C33	De la Cruz <i>et al.</i> , "Immunogenicity and Epitope Mapping of Foreign Sequences via Genetically Engineered Filamentous Phage," <i>J. Biol. Chem.</i> , 263(9):4318-4322 (1988).
	C34	Dildrop, R., "A new classification of mouse $V_H$ sequences," <i>Immunol. Today</i> , 5(4):85-86 (1984).
	C35	Dillman, R.O., "Monoclonal Antibodies for Treating Cancer," <i>Annals of Internal Medicine</i> , 111:592-603 (1989).
	C36	Dower, W.J. <i>et al.</i> , "High efficiency transformation of <i>E. coli</i> by high voltage electroporation," <i>Nucl. Acids Res.</i> , 16(13):6127-6145 (1988).
	C37	Eckert, K.A. <i>et al.</i> , "High fidelity DNA synthesis by the <i>Thermus aquaticus</i> DNA polymerase," <i>Nucl. Acids Res.</i> , 18(13):3739-3744 (1990).
	C38	Eisen, H.N., "Determination of Antibody Affinity For Haptens and Antigens by Means of Fluorescence Quenching," <i>Meth. Med. Res.</i> , 10:115-121 (1964).
	C39	Evan, G.I. <i>et al.</i> , "Isolation of Monoclonal Antibodies Specific for Human <i>c-myc</i> Proto-Oncogene Product," <i>Mol. Cell. Biol.</i> , 5(12):3610-3616 (December, 1985).
	C40	Fikes, J.D. <i>et al.</i> , "Maturation of <i>Escherichia coli</i> Maltose-binding Protein by Signal Peptidase I <i>in Vivo</i> ," <i>J. Biological Chemistry</i> , 265(6):3417-3423 (1990).
	C41	Galfré, G. <i>et al.</i> , "Preparation of Monoclonal Antibodies: Strategies and Procedures," <i>Methods Enzymology</i> , 73:3-46 (1981).
↓	C42	Gherardi, E. <i>et al.</i> , "A single-step procedure for cloning and selection of antibody-secreting hybridomas," <i>J. Immunol. Methods</i> , 126:61-68 (1990).

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ADS	C43	Glockshuber, R. <i>et al.</i> , "The Disulfide Bonds in Antibody Variable Domains: Effects on Stability, Folding in Vitro, and Functional Expression in Escherichia coli," <i>Biochemistry</i> , 31:1270-1279 (1992).
	C44	Goldstein, G., "Overview of the Development of ORTHOCLONE OKT3: Monoclonal Antibody for Therapeutic Use in Transplantation," <i>Transplantation Proceedings</i> , Vol. XIX, No. 2, Suppl. 1:1-6 (April, 1987).
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	C47	Grant, R.A. <i>et al.</i> , "Structure of the Filamentous Bacteriophage f1," <i>J. Biol. Chem.</i> , 256(1):539-546 (January, 1981).
	C48	Griffiths, G.M. <i>et al.</i> , "Somatic mutation and the maturation of immune response to 2-phenyl oxazolone," <i>Nature</i> , 312:271-275 (1984).
	C49	Gronwald, R.G.K. <i>et al.</i> , "Cloning and expression of a cDNA coding for the human platelet-derived growth factor receptor: Evidence for more than one receptor class," <i>Proc. Natl. Acad. Sci., USA</i> , 85:3435-3439 (May, 1988).
	C50	Harper, M. <i>et al.</i> , "Antigen Specificity and Cross-Reactivity of Monoclonal Anti-Lysozyme Antibodies," <i>Molec. Immunol.</i> , 24(2):97-108 (1987).
	C51	Harris, W.J. <i>et al.</i> , "Therapeutic antibodies - the coming of age," <i>Trends Biotechnology</i> , 11:42-44 (February, 1993).
	C52	Hird, V. <i>et al.</i> , "Immunotherapy with Monoclonal Antibodies," in <i>Genes and Cancer</i> , Edited by D. Carney and K. Sikora, John Wiley & Sons, Ltd., pp.183-189 (1990).
	C53	Horton, R.M. <i>et al.</i> , "Engineering hybrid genes without the use of restriction enzymes: gene splicing by overlap extension," <i>Gene</i> , 77:61-68 (1989).
	C54	Hughes-Jones, N.C. <i>et al.</i> , "Nucleotide sequences and three-dimensional modelling of the V <sub>H</sub> and V <sub>L</sub> domains of two human monoclonal antibodies specific for the D antigen of the human Rh-blood-group system," <i>Biochem. J.</i> , 268:135-140 (1990).
↓	C55	Hull, W.E. <i>et al.</i> , " <sup>31</sup> P Nuclear Magnetic Resonance Study of Alkaline Phosphatase: The Role of Inorganic Phosphate in Limiting the Enzyme Turnover Rate at Alkaline pH," <i>Biochemistry</i> , 15(7):1547-1561 (1976).

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	C61	Kang, A.S. <i>et al.</i> , "Antibody redesign by chain shuffling from random combinatorial immunoglobulin libraries," <i>Proc. Natl. Acad. Sci., USA</i> , 88(24):1120-11123 (1991).
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	C64	Kim, Y. <i>et al.</i> , "Refinement of Eco RI Endonuclease Crystal Structure: A Revised Protein Chain Tracing," <i>Science</i> , 249:1307-1309 (1990).
	C65	Köhler, G. <i>et al.</i> , "Continuous cultures of fused cells secreting antibody of predefined specificity," <i>Nature</i> , 256:495-497 (August, 1975).
	C66	Kornberg, A., <i>DNA Replication</i> , W.H. Freeman & Co., San Francisco, pp. 15, 20, 287, 385, 368-369, 383-385, 393, 461, 474, 478-496, 505-506 (1974).
	C67	Laforet, G.A. <i>et al.</i> , "Functional Limits of Conformation, Hydrophobicity, and Steric Constraints in Prokaryotic Signal Peptide Cleavage Regions," <i>J. Biological Chemistry</i> , 266(2):1326-1334 (1991).
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ADS	C69	Lesk, A. M. <i>et al.</i> , "Elbow motion in the immunoglobulins involves a molecular ball-and-socket joint," <i>Nature</i> , 335:188-190 (September, 1988).
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	C73	McCafferty <i>et al.</i> , "Phage Antibodies: Filamentous Phage Displaying Antibody Variable Domains," <i>Nature</i> , 348:552-554 (1990).
	C74	McCracken, S. <i>et al.</i> , "Functional and Structural Properties of Immobilized Subunits of <i>Escherichia coli</i> Alkaline Phosphatase," <i>J. Biol. Chem.</i> , 255(6):2396-2404 (March, 1980).
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	C76	Milstein F.R.S., C., "The Croonian Lecture, 1989 Antibodies: a paradigm for the biology of molecular recognition," <i>Proceedings of the Royal Society of London</i> , 239(1294):1-16 (1990).
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	C78	Nagai, K. <i>et al.</i> , "Synthesis and Sequence-Specific Proteolysis of Hybrid Proteins Produced in <i>Escherichia coli</i> ," <i>Methods Enzymology</i> , 153:461-481 (1987).
	C79	Neuberger, M.S. <i>et al.</i> , "Recombinant antibodies possessing novel effector functions," <i>Nature</i> , 312:604-608 (1984).
	C80	Newman, A.K. <i>et al.</i> , "DNA Sequences of Structural Genes for <i>Eco</i> RI DNA Restriction and Modification Enzymes," <i>J. Biological Chemistry</i> , 256(5):2131-2139 (1981).
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Form PTO-1449 (Modified)

U.S. Department of Commerce  
Patent and Trademark Office

App. Docket No.

05569.0004.DVUS11

Serial No.

New  
Application

## INFORMATION DISCLOSURE STATEMENT

Applicant

McCafferty, J. *et al.*

Filing Date

3-18-04

Group

(Use several sheets if necessary)

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Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use several sheets if necessary)										Docket Number <b>05569.0004.DVUS11</b>										Application Number <b>New Applicaiton</b>									
										Applicant <b>McCafferty et al.</b>																			
										Filing Date <b>March 18, 2004</b>										Group Art Unit									
<b>U. S. PATENT DOCUMENTS</b>																													
EXAMINER INITIAL		DOCUMENT NUMBER								DATE		NAME						CLASS		SUB CLASS		FILING DATE IF APPROP.							
ADS		A1		6	3	3	1	4	1	5	<del>XXXXXX</del>		Cabilly et al.						435		69.6		6/10/88						
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		<del>XX</del>		5	9	6	9	1	0	8	10/99		McCafferty et al.						530/387		3		<del>XXXXXX</del>						
<b>FOREIGN PATENT DOCUMENTS</b>																													
		DOCUMENT NUMBER								DATE		COUNTRY						CLASS		SUB CLASS		Translation Yes No							
ADS		B1		WO 88/01649								3/10/88		PCT															
↓		B2		GB9022845.3								10/19/90		Great Britain															
		B3		GB9024503.6 patent application								11/12/90		Great Britain															
		B4		GB 9104744.9 patent application								3/6/91		Great Britain															
		B5		EP-A-0 368 684								5/16/90		Great Britain															
		B6		GB9015198.6 priority document								7/10/90		Great Britain															
		B7		GB 9022845.3 priority document								10/19/90		Great Britain															
		B8		GB 9104744.9 priority document								3/6/91		Great Britain															
		B9		GB9110549.4 priority document								5/15/91		Great Britain															
		B10		EP-B-0 349 578 B1								11/30/94		Great Britain															
<b>OTHER DOCUMENTS</b> (Including Author, Title, Date, Pertinent Pages, Etc.)																													
C1		<del>First Amended Complaint, Filed March 8, 2002 - Morphosys AG v. Cambridge Antibody Technology Limited, Case No. 1:00-CV-00146 (24 pages) (U.S. District Court, District of Columbia)(signed by John S. Eklund, Attorney for Plaintiff.)</del>																											
		<del>Cambridge Antibody Technology Limited's Answer to First Amended Complaint, Filed March 22, 2002 - Morphosys AG v. Cambridge Antibody Technology Limited, Case No. 1:00-CV-00146 (30 pages) (U.S. District Court, District of Columbia)(signed by Brian H. Corcoran, Attorney for Defendant).</del>																											
C2																													
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				<b>Application Number</b>	10/803,622
				<b>Filing Date</b>	March 18, 2004
				<b>First Named Inventor</b>	John McCafferty
				<b>Group Art Unit</b>	1639
				<b>Examiner Name</b>	Not yet assigned
<b>Sheet</b>	1	<b>of</b>	1	<b>Attorney Docket Number</b>	05569.0004.DVUS11

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<b>Examiner Initials*</b>	<b>Cite No.<sup>1</sup></b>	<b>Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher city and/or country where published</b>	<b>T<sup>2</sup></b>	
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<b>Examiner Signature</b>	/Amber Steele/	<b>Date Considered</b>	06/15/2006
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